



1600

**RAW SEQUENCE LISTING**  
PATENT APPLICATION: US/09/147,801D

DATE: 02/05/2003  
TIME: 16:02:02

Input Set : A:\3786002.app  
Output Set: N:\CRF4\02052003\I147801D.raw

3 <110> APPLICANT: NIKLASSON, BO  
 5 <120> TITLE OF INVENTION: NEW PICORNAVIRUSES, VACCINES AND DIAGNOSTIC KITS  
 7 <130> FILE REFERENCE: 03786.002  
 9 <140> CURRENT APPLICATION NUMBER: 09/147,801D  
 10 <141> CURRENT FILING DATE: 1999-03-11  
 12 <150> PRIOR APPLICATION NUMBER: PCT/SE97/01515  
 13 <151> PRIOR FILING DATE: 1997-09-09  
 15 <160> NUMBER OF SEQ ID NOS: 25  
 17 <170> SOFTWARE: PatentIn Ver. 2.1  
 19 <210> SEQ ID NO: 1  
 20 <211> LENGTH: 264  
 21 <212> TYPE: DNA  
 22 <213> ORGANISM: Ljungan virus  
 24 <400> SEQUENCE: 1  
 25 agtcttagtct tatcttgtat gtgtcctgca ctgaacttgt ttctgtctct ggagtgcct 60  
 26 acacttcagt aggggctgta cccgggcgtt cccactttc acaggaatct gcacaggtgg 120  
 27 cttcaccc tcggacagtgc attccacacc cgctccacgg tagaagatga tgtgtgtctt 180  
 28 tgcttgaa aagcttgta aaatcgtagt taggcgttagc ggctacttga gtgccagcgg 240  
 29 attaccccta gtggtaaacac tagc 264  
 32 <210> SEQ ID NO: 2  
 33 <211> LENGTH: 264  
 34 <212> TYPE: DNA  
 35 <213> ORGANISM: Ljungan virus  
 37 <220> FEATURE:  
 38 <221> NAME/KEY: modified\_base  
 39 <222> LOCATION: (1)..(264)  
 40 <223> OTHER INFORMATION: "n" represents a, t, c, g, other or unknown  
 42 <400> SEQUENCE: 2  
 43 agtcttagttt cattctgtgt gtgtttggca ctgaaattat ttctgtctct ggggtgcctt 60  
 W--> 44 acacttcagt aggggctgta cccgggcgtt cccactttc acaggaatnt gcacaggtgg 120  
 45 cttcaccc tcggacagtgc attccacacc cgctccacag tagaagatga tgtgtgtctt 180  
 W--> 46 tgcttgaa aagcttgta aaatcgtagt taggcgttagc ggntacttga gtgccagcgg 240  
 W--> 47 acnaccccta gtggtaaacac tagc 264  
 50 <210> SEQ ID NO: 3  
 51 <211> LENGTH: 264  
 52 <212> TYPE: DNA  
 53 <213> ORGANISM: Ljungan virus  
 55 <400> SEQUENCE: 3  
 56 agtttggtttc tctcttgagt gtgtttgtg ttagcataat ttctgtctct agagtgcctt 60  
 57 acactctagt aggggctgta cccgggcgtt cccactttc acaggaatct gcacaggtgg 120  
 58 cttcaccc tcggacagtgc attccatacc cgctccacaa tagaagatga tgttatatctt 180  
 59 tgtttggaa atgctcatga aacgtgtgt taggcgttagc ggctacttga atgccagcgg 240  
 60 aacccccccta gtggtaaacac tagc 264

ENTERED

**RAW SEQUENCE LISTING**  
**PATENT APPLICATION: US/09/147,801D**

DATE: 02/05/2003  
TIME: 16:02:02

Input Set : A:\3786002.app  
Output Set: N:\CRF4\02052003\I147801D.raw

63 <210> SEQ ID NO: 4  
64 <211> LENGTH: 179  
65 <212> TYPE: PRT  
66 <213> ORGANISM: Ljungan virus  
68 <400> SEQUENCE: 4  
69 Lys Asp Leu Met Glu Ile Ala Arg Met Pro Ser Val Tyr Lys Gly Glu  
70 1 5 10 15  
72 Arg Thr Glu Pro Gly Gly Thr Asn Gly Tyr Phe Gln Trp Ser His Thr  
73 20 25 30  
75 His Ser Pro Ile Asn Trp Val Phe Asp Gly Gly Ile His Leu Glu Asp  
76 35 40 45  
78 Met Pro Asn Leu Asn Leu Phe Ser Ser Cys Tyr Asn Tyr Trp Arg Gly  
79 50 55 60  
81 Ser Thr Val Leu Lys Leu Thr Val Tyr Ala Ser Thr Phe Asn Lys Gly  
82 65 70 75 80  
84 Arg Leu Arg Met Ala Phe Phe Pro Ile Met Met Gln Gly Thr Gln Arg  
85 85 90 95  
87 Lys Lys His Lys Cys Leu Phe Met Val Cys Asp Ile Gly Leu Asn Asn  
88 100 105 110  
90 Thr Phe Glu Met Thr Ile Pro Tyr Thr Trp Gly Asn Trp Met Arg Pro  
91 115 120 125  
93 Thr Arg Gly Ser Val Ile Gly Trp Leu Arg Ile Asp Val Leu Asn Arg  
94 130 135 140  
96 Leu Thr Tyr Asn Ser Ser Pro Asn Ala Val Asn Cys Ile Leu Gln  
97 145 150 155 160  
99 Val Lys Met Gly Asn Asp Ala Lys Phe Met Val Pro Thr Thr Ser Asn  
100 165 170 175  
102 Ile Val Trp  
106 <210> SEQ ID NO: 5  
107 <211> LENGTH: 241  
108 <212> TYPE: DNA  
109 <213> ORGANISM: Cardiovirus  
111 <400> SEQUENCE: 5  
112 tgacagggtt atttcacct cttctttct actccacagt gttctataact gtgaaagggt 60  
113 atgttgtgcc ctttccttct tggagaacgt gcgcggcggt cttdccgtct ctgcacaagc 120  
114 gcgcgtgcaa catacagagt aacgcgaaga aagcagttct cggtcttagct ctatgtcccc 180  
115 caagaaaaca gctgtagcga ccacacaaag gcagcggAAC cccccctcctg gtaacaggag 240  
116 c  
119 <210> SEQ ID NO: 6  
120 <211> LENGTH: 243  
121 <212> TYPE: DNA  
122 <213> ORGANISM: Cardiovirus  
124 <400> SEQUENCE: 6  
125 tgacagggtt atttcacct cttctctttt ctacttcata gtgttctata ctatgaaagg 60  
126 gtatgtgtcg ccccttcctt cttggagaac gtgcgtggcg gtctttccgt ctctcgaaaa 120  
127 acgtgcgtgc gacatgcaga gtaacgcaaa gaaagcagtt cttggtctag ctctgggtgcc 180  
128 cacaagaaaa cagctgttagc gaccacacaa aggccagcggA aaccccctcc ttggtaacagg 240  
129 agc  
132 <210> SEQ ID NO: 7

RAW SEQUENCE LISTING  
PATENT APPLICATION: US/09/147,801D

DATE: 02/05/2003  
TIME: 16:02:02

Input Set : A:\3786002.app  
Output Set: N:\CRF4\02052003\I147801D.raw

133 <211> LENGTH: 247  
134 <212> TYPE: DNA  
135 <213> ORGANISM: Cardiovirus  
137 <400> SEQUENCE: 7  
138 aggccggtgt gcgtttgtct atatgttatt ttccaccata ttgccgtctt ttggcaatgt 60  
139 gagggccccc aaacctggcc ctgtcttctt gacgagcatt cctagggtc tttccctct 120  
140 cgccaaagga atgcaaggta tgtaaatgt cgtgaaggaa gcagttcctc tggaagcttc 180  
141 ttgaagacaa acaacgtctg tagcgaccct ttgcaggcag cgaaaccccc cacctggcga 240  
142 caggtgc 247  
145 <210> SEQ ID NO: 8  
146 <211> LENGTH: 188  
147 <212> TYPE: PRT  
148 <213> ORGANISM: Cardiovirus  
150 <400> SEQUENCE: 8  
151 Ser Asp Leu Leu Glu Leu Cys Lys Leu Pro Thr Phe Leu Gly Asn Pro  
152 1 5 10 15  
154 Asn Thr Asn Asn Lys Arg Tyr Pro Tyr Phe Ser Ala Thr Asn Ser Val  
155 20 25 30  
157 Pro Ala Thr Ser Met Val Asp Tyr Gln Val Ala Leu Ser Cys Ser Cys  
158 35 40 45  
160 Met Ala Asn Ser Met Leu Ala Ala Val Ala Arg Asn Phe Asn Gln Tyr  
161 50 55 60  
163 Arg Gly Ser Leu Asn Phe Leu Phe Val Phe Thr Gly Ala Ala Met Val  
164 65 70 75 80  
166 Lys Gly Lys Phe Leu Ile Ala Tyr Thr Pro Pro Gly Ala Gly Lys Pro  
167 85 90 95  
169 Thr Thr Arg Asp Gln Ala Met Gln Ser Thr Tyr Ala Ile Trp Asp Leu  
170 100 105 110  
172 Gly Leu Asn Ser Ser Phe Asn Phe Thr Ala Pro Phe Ile Ser Pro Thr  
173 115 120 125  
175 His Tyr Arg Gln Thr Ser Tyr Thr Ser Pro Thr Ile Thr Ser Val Asp  
176 130 135 140  
178 Gly Trp Val Thr Val Trp Lys Leu Thr Pro Leu Thr Tyr Pro Ser Gly  
179 145 150 155 160  
181 Thr Pro Thr Asn Ser Asp Ile Leu Thr Leu Val Ser Ala Gly Asp Asp  
182 165 170 175  
184 Phe Thr Leu Arg Met Pro Ile Ser Pro Thr Lys Trp  
185 180 185  
188 <210> SEQ ID NO: 9  
189 <211> LENGTH: 188  
190 <212> TYPE: PRT  
191 <213> ORGANISM: Cardiovirus  
193 <400> SEQUENCE: 9  
194 Ser Asp Leu Leu Glu Leu Cys Lys Leu Pro Thr Phe Leu Gly Asn Pro  
195 1 5 10 15  
197 Ser Thr Asp Asn Lys Arg Tyr Pro Tyr Phe Ser Ala Thr Asn Ser Val  
198 20 25 30  
200 Pro Ala Thr Ser Leu Val Asp Tyr Gln Val Ala Leu Ser Cys Ser Cys  
201 35 40 45

**RAW SEQUENCE LISTING**  
**PATENT APPLICATION: US/09/147,801D**

**DATE: 02/05/2003**  
**TIME: 16:02:02**

**Input Set : A:\3786002.app**  
**Output Set: N:\CRF4\02052003\I147801D.raw**

```

203 Met Ala Asn Ser Met Leu Ala Ala Val Ala Arg Asn Phe Asn Gln Tyr
204      50          55          60
206 Arg Gly Ser Leu Asn Phe Leu Phe Val Phe Thr Gly Ala Ala Met Val
207      65          70          75          80
209 Lys Gly Lys Phe Arg Ile Ala Tyr Thr Pro Pro Gly Ala Gly Lys Pro
210      85          90          95
212 Thr Thr Arg Asp Gln Ala Met Gln Ala Thr Tyr Ala Ile Trp Asp Leu
213      100         105         110
215 Gly Leu Asn Ser Ser Phe Asn Phe Thr Ala Pro Phe Ile Ser Pro Thr
216      115         120         125
218 His Tyr Arg Gln Thr Ser Tyr Thr Ser Pro Thr Ile Thr Ser Val Asp
219      130         135         140
221 Gly Trp Val Thr Val Trp Gln Leu Thr Pro Leu Thr Tyr Pro Ser Gly
222      145         150         155         160
224 Thr Pro Thr Asn Ser Asp Ile Leu Thr Leu Val Ser Ala Gly Asp Asp
225      165         170         175
227 Phe Thr Leu Arg Met Pro Ile Ser Pro Thr Lys Trp
228      180         185
231 <210> SEQ ID NO: 10
232 <211> LENGTH: 188
233 <212> TYPE: PRT
234 <213> ORGANISM: Cardiovirus
236 <400> SEQUENCE: 10
237 Ser Asp Leu Leu Glu Leu Cys Lys Leu Pro Thr Phe Leu Gly Asn Pro
238      1           5           10          15
240 Ser Thr Asp Asn Lys Arg Tyr Pro Tyr Phe Ser Ala Thr Asn Ser Val
241      20          25          30
243 Pro Ala Thr Ser Leu Val Asp Tyr Gln Val Ala Leu Ser Cys Ser Cys
244      35          40          45
246 Met Ala Asn Ser Met Leu Ala Ala Val Ala Arg Asn Phe Asn Gln Tyr
247      50          55          60
249 Arg Gly Ser Leu Asn Phe Leu Phe Val Phe Thr Gly Ala Ala Met Val
250      65          70          75          80
252 Lys Gly Lys Phe Leu Ile Ala Tyr Thr Pro Pro Gly Ala Gly Lys Pro
253      85          90          95
255 Thr Thr Arg Asp Gln Ala Met Gln Ala Thr Tyr Ala Ile Trp Asp Leu
256      100         105         110
258 Gly Leu Asn Ser Ser Phe Asn Phe Thr Ala Pro Phe Ile Ser Pro Thr
259      115         120         125
261 His Tyr Arg Gln Thr Ser Tyr Thr Ser Pro Thr Ile Thr Ser Val Asp
262      130         135         140
264 Gly Trp Val Thr Val Trp Gln Leu Thr Pro Leu Thr Tyr Pro Ser Gly
265      145         150         155         160
267 Thr Pro Thr Asn Ser Asp Ile Leu Thr Leu Val Ser Ala Gly Asp Asp
268      165         170         175
270 Phe Thr Leu Arg Met Pro Ile Ser Pro Thr Lys Trp
271      180         185
274 <210> SEQ ID NO: 11
275 <211> LENGTH: 188

```

RAW SEQUENCE LISTING  
PATENT APPLICATION: US/09/147,801D

DATE: 02/05/2003  
TIME: 16:02:02

Input Set : A:\3786002.app  
Output Set: N:\CRF4\02052003\I147801D.raw

276 <212> TYPE: PRT  
 277 <213> ORGANISM: Cardiovirus  
 279 <400> SEQUENCE: 11  
 280 Ser Asp Leu Leu Glu Leu Cys Lys Leu Pro Thr Phe Leu Gly Asn Pro  
 281 1 5 10 15  
 283 Asn Ser Asn Asn Lys Arg Tyr Pro Tyr Phe Ser Ala Thr Asn Ser Val  
 284 20 25 30  
 286 Pro Thr Thr Ser Leu Val Asp Tyr Gln Val Ala Leu Ser Cys Ser Cys  
 287 35 40 45  
 289 Met Ala Asn Ser Met Leu Ala Ala Val Ala Arg Asn Phe Asn Gln Tyr  
 290 50 55 60  
 292 Arg Gly Ser Leu Asn Phe Leu Phe Val Phe Thr Gly Ala Ala Met Val  
 293 65 70 75 80  
 295 Lys Gly Lys Phe Leu Ile Ala Tyr Thr Pro Pro Gly Ala Gly Lys Pro  
 296 85 90 95  
 298 Thr Thr Arg Asp Gln Ala Met Gln Ala Thr Tyr Ala Ile Trp Asp Leu  
 299 100 105 110  
 301 Gly Leu Asn Ser Ser Phe Val Phe Thr Ala Pro Phe Ile Ser Pro Thr  
 302 115 120 125  
 304 His Tyr Arg Gln Thr Ser Tyr Thr Ser Ala Thr Ile Ala Ser Val Asp  
 305 130 135 140  
 307 Gly Trp Val Thr Val Trp Gln Leu Thr Pro Leu Thr Tyr Pro Ser Gly  
 308 145 150 155 160  
 310 Ala Pro Val Asn Ser Asp Ile Leu Thr Leu Val Ser Ala Gly Asp Asp  
 311 165 170 175  
 313 Phe Thr Leu Arg Met Pro Ile Ser Pro Thr Lys Trp  
 314 180 185  
 317 <210> SEQ ID NO: 12  
 318 <211> LENGTH: 187  
 319 <212> TYPE: PRT  
 320 <213> ORGANISM: Cardiovirus  
 322 <220> FEATURE:  
 323 <221> NAME/KEY: MOD\_RES  
 324 <222> LOCATION: (102)  
 325 <223> OTHER INFORMATION: variable or unknown amino acid  
 327 <400> SEQUENCE: 12  
 328 Thr Asp Leu Leu Glu Leu Cys Lys Leu Pro Thr Phe Leu Gly Asn Leu  
 329 1 5 10 15  
 331 Ser Asn Asp Thr Arg Val Pro Phe Phe Thr Ala Thr Asn Ser Val Pro  
 332 20 25 30  
 334 Thr Glu Ser Leu Val Glu Tyr Gln Val Thr Leu Ser Cys Ser Cys Met  
 335 35 40 45  
 337 Ser Asn Ser Met Leu Ala Ser Val Ala Arg Asn Phe Asn Gln Tyr Arg  
 338 50 55 60  
 340 Gly Ser Leu Asn Phe Leu Phe Val Phe Thr Gly Ser Ala Met Thr Lys  
 341 65 70 75 80  
 343 Gly Lys Phe Leu Ile Ala Tyr Thr Pro Pro Gly Ala Gly Lys Pro Thr  
 344 85 90 95  
 W--> 346 Thr Arg Asp Gln Ala Xaa Gln Ser Thr Tyr Ala Ile Trp Asp Leu Gly

RAW SEQUENCE LISTING ERROR SUMMARY                    DATE: 02/05/2003  
PATENT APPLICATION: US/09/147,801D                    TIME: 16:02:03

Input Set : A:\3786002.app  
Output Set: N:\CRF4\02052003\I147801D.raw

Please Note:

Use of n and/or Xaa have been detected in the Sequence Listing. Please review the Sequence Listing to ensure that a corresponding explanation is presented in the <220> to <223> fields of each sequence which presents at least one n or Xaa.

Seq#:2; N Pos. 109,223,243

Seq#:12; Xaa Pos. 102